

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Albuquerque**

Site Summary Level: **Sandia National Laboratories**

Project **AL017 / Sandia National Laboratories Waste Management**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0134**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: SNL, which includes laboratories in New Mexico (SNL/NM) and California (SNL/CA) and operations at the Tonopah Test Range in Nevada and the Kauai Test Facility in Hawaii, produces waste from a variety of sources. The laboratories include more than 900 hazardous waste generators, 100 radioactive waste generators, and 25 low-level mixed waste generators, most of whom produce small quantities of waste associated with ongoing mission-related research and development activities. Relatively larger volumes are produced by various projects that include environmental restoration, decontamination and decommissioning, historical inventory work-off, and SNL's Neutron Generator Production Project. SNL has also received waste from other DOE facilities (e.g., transuranic waste from the Inhalation Toxicology Research Institute). In addition, radioactive and hazardous waste will be generated by the Medical Isotope Production Project (99- Molybdenum), which is expected to come on line during FY 1998.

Key work scope activities, in order of priority, include the following: (1) treatment, storage, and disposal of regulated, non-radioactive waste; (2) compliance with the Site Treatment Plan for Mixed Waste; (3) collection, treatment, and storage of ongoing mixed waste; (4) collection and storage of low-level waste; (5) disposal of newly generated low-level waste; (6) mixed waste disposal; (7) management of transuranic waste; (8) non-routine activities; (9) DOE-directed activities not tied to site mission; and (10) disposal of historical low-level waste.

Technical Approach: SNL's Waste Management Project conducts fully functioning waste operations for hazardous, low-level, and low-level mixed waste. These operations include assisting generators in managing and characterizing their waste, collecting waste from generators, completing disposal profiling, repacking, storage, treatment, arranging shipping and disposal, and assuring compliance in all waste management activities. Other waste management activities include waste minimization, management of historical/legacy waste, and facility planning, construction, and maintenance. These operations and activities are staffed with qualified and experienced personnel, including subcontractors working under performance-based task orders or turnkey operation contracts to provide specialized services when needed. Appropriate permits and permit applications are in place.

Hazardous chemical waste is typically lab-packed before being shipped to a licensed commercial facility for disposal. Low-level waste treatment includes shredding, compaction, encapsulation, stabilization, consolidation, and/or repacking, depending on the form of the waste, to reduce volume, liability, and cost prior to disposal at a commercial or DOE facility. SNL/CA's low-level mixed waste has been shipped to SNL/NM to achieve economy of scale and eliminate the need for a second state-issued compliance order. Preferred mixed waste treatment options include utilizing DOE or commercial facilities, especially for incineration and encapsulation. SNL also conducts limited on-site treatment, such as neutralization and solidification, of selected mixed waste treatability groups identified in its Site Treatment Plan for Mixed Waste. SNL currently has no spent nuclear fuel, although depleted core reactor fuel rods are expected to be generated beginning in FY 1999; these rods will be managed under the Spent Nuclear Fuel National Program and shipped directly to the Idaho National Engineering Laboratory (INEL). Neither the SNL WM Project nor any EM- 30 funds will be involved.

SNL is also pursuing a technology implementation project- -the construction of a thermal desorption unit- -for the treatment of low-level mixed waste.

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Project Status in FY 2006:

By FY 2006, SNL's WM Project will be characterized by the disposition of all historical waste; the cost-efficient disposition of all newly generated waste within permit and regulatory time limits; the closure (or planned closure) of excess waste management facilities; and compliance with DOE regulatory and program-structure requirements. Completed activities associated with the disposal of historical waste and the transition to a generator-funded support service include the following: compliance with the Site Treatment Plan for Mixed Waste, non-routine activities, DOE-directed (EM) activities not tied to site mission, and disposal of historical low-level waste.

Post-2006 Project Scope:

SNL assumes its mission will continue for the foreseeable future. Post FY 2006 scope will include those areas necessary to safely and compliantly manage waste generated by ongoing mission-related laboratory activities. Project-wide tasks will focus on permitting, facilities management, generator interface, and operations and program management. Area-specific tasks will include: treatment, storage, and disposal of regulated, non-radioactive waste; collection, treatment, and storage of ongoing mixed waste; collection and storage of low-level waste; disposal of newly generated low-level waste; mixed waste disposal; management of transuranic waste; and new facility planning.

Project End State

Beginning in FY1999, Waste Operations at the Sandia National Laboratories was transferred to the Landlord Program. The transfer was made in order to reduce the overall life-cycle costs of waste operations and to make waste generators financially responsible for the waste they produce.

SNL assumes its mission will continue beyond the 2006 Plan reporting period. If during this time or subsequent to it the laboratories become scheduled for closure, achieving a final end state for the WM Project will require the decontamination and decommissioning of several multi-program facilities; the disposition of all hazardous, radioactive, and mixed waste; clean-up of contaminated areas consistent with future-use assumptions; and monitoring and surveillance activities necessary to ensure the health and safety of the public and the environment.

Cost Baseline Comments:

- Funding targets are based on DOE/AL guidance.
- SNL's WM PBS is based on full funding.
- Escalation is based on DOE/AL guidance.
- The ER Project produces hazardous, low-level, and mixed waste. TSD of this waste is managed by WM personnel but funded by the ER Project through EM-40. These volumes are not included in the WM PBS.

Supporting cost-baseline information is contained in SNL's baseline document and backup material.

Safety & Health Hazards:

In response to the closure of on-site landfills resulting from the Hazardous and Solid Waste Act Amendments of 1984, SNL's WM Project has developed a facility infrastructure, including appropriate permits, for the management of hazardous, low-level, low-level mixed, and transuranic waste. A disposal pathway for hazardous waste has been in place since FY 1988, and for low-level waste since FY 1994. In FY 1995, SNL completed a Site Treatment Plan for Mixed Waste calling for the on-site treatment of identified mixed waste by FY 2002; subsequent strategic changes for mixed

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waste call for off-site treatment and disposal of some treatability groups. Current strategies indicate that SNL will work with LANL for the management and disposition of SNL's TRU waste in the most cost-effective manner.

For each waste stream and for each facility, policies and procedures are in place to reduce both the likelihood and consequence of associated risk. In addition, the WM Project has implemented SNL's Integrated Safety Management System (ISMS). This safety management system establishes a set of guiding principles to ensure that:

- All personnel know and understand their roles, authorities, and accountabilities.
- All work is planned with appropriate rigor.
- All hazards are identified and properly controlled through engineered or administrative processes.
- The correct standards are identified and applied to safe work practices.
- Work is performed by trained, qualified personnel.
- Safe work processes are evaluated and improved.

SNL's ISMS was issued March 31, 1997 and is available for review and reference. The complete SNL ISMS document, and related documentation, can be accessed on the Web at:
<http://www-irm.sandia.gov/organization/div7000/ctr7500/ismsdoc.htm>.

The following sections reference the ISMS document.

Section 2.5 of the Sandia Integrated Safety Management System (ISMS), "Analyze and Categorize Hazards," discusses the process of analyzing and categorizing hazards in terms of capturing new work or modifications to existing work. The hazards analysis process includes NEPA documentation, Preliminary Hazard Assessment, Preliminary Hazard Classification, Safety Document Determination, Procedure Development Process, and Readiness Review Process.

Safety & Health Work Performance:

Section 2.7 of Sandia's ISMS, "Perform Work," includes two sections:

- 2.7.1 Confirm Readiness - Prior to operation of a new low-hazard facility or restart of an existing low-hazard facility, SNL performs an internal prestart readiness assessment. The readiness assessment verifies that procedures, personnel, systems, and equipment are ready to perform the required tasks and functions.
- 2.7.2 Perform Work Safely - Each SNL organization uses work management processes and systems that are unique to the specific needs of that organization. They must, however, meet all requirements provided in MN471001, ES&H Manual, as previously described. Where appropriate, SNL managers prepare a work plan at the beginning of the execution year for an approved project or activity. A work plan describes how the work will be accomplished during the execution year and includes the resources allocated to the tasks, a schedule of the work activities, and, in some cases, a work breakdown structure.

PBS Comments:

The Program Baseline Summary (PBS) for SNL's WM Project contains information from several SNL sites, including SNL/NM, SNL/CA, the Tonopah Test Range, and the Kauai Test Facility. It also combines three formerly separate Activity Data Sheets (ADSs): ADS 1133, Facility

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Operations and Maintenance; ADS 1136, New Facility Planning; and ADS 1137, General Plant Projects.

In the past, SNL/CA has submitted ADSs separate from those for SNL/NM. Beginning with this 2006 Plan, SNL/CA information, including scope, schedules, volumes, and funding, is being incorporated within one PBS for both sites.

Additional factors that may affect future project scope:

- Waste volumes are low in the outyears, while associated budgets are high in comparison to those of prior years. This is due to the fact that the nuclear materials in inventory, included as newly generated waste in Low-Level Waste and Mixed Waste, are projected to be much more difficult and expensive to characterize and dispose than mixed and low-level waste currently generated, due to the fact that it is classified, accountable, high activity, and/or very hazardous in nature.
- To offset fixed infrastructure costs associated with mission-related WM facilities and to maintain facility capabilities, SNL will investigate the possibility of treating off-site waste using on-site waste treatment capabilities.
- Activities conducted in SNL's Hot Cell Facility are expected to produce the following waste types: TRU, mixed TRU, mixed low-level waste, and low-level waste. Some of this waste will require remote handling.
- SNL expects approximately 12 cubic meters of TRU material to be declared waste by the end of FY 1998. Two cubic meters of this material may require remote handling.
- The recent changes in SNL site-level funding targets for FY 1999 and 2000, resulted in a reduction in FY 2000 WM funding of \$2.8M. This reduction will delay the characterization and disposal of legacy material and waste until after FY 2006.
- The current plan for management and disposition of SNL's TRU waste inventory is to: (1) Develop a plan to ship remote-handled (RH) TRU to LANL, (2) Modify the Auxiliary Hot Cell so SNL can repackage the RH TRU currently in TA-V, (3) Characterize the waste in inventory, of which a significant amount has already been characterized, (4) Repackage the RH waste for transportation to LANL, and (5) Ship the waste, contact-handled (CH) and TH TRU, to LANL for continuing management and eventual disposal of the waste at the WIPP. CH TRU waste will be shipped at the direction of DOE/AL WMD. WIPP-ready TRU waste in storage at SNL may be shipped directly from SNL to WIPP rather than transported to LANL for consolidation with their inventory. It is assumed that EM-30 will continue to fund the disposition of SNL's TRU waste work off. LANL's funding will need to be increased accordingly prior to their accepting responsibility for the management and disposition of SNL's TRU waste. Costs and funding requirements will be determined at a later date. Should LANL's funding be increased, most likely through a funding transfer from SNL to LANL beginning in FY 1999, work performed on site at SNL by SNL Waste Management personnel or subcontractors will be funded by LANL's EM-30 funds. Generators of newly generated TRU waste will continue to be responsible for characterization and packaging of their waste.

Baseline Validation Narrative:

SNL/NM submitted a draft of the Baseline Document for FY 1998 to the KAO on August 1, 1997. DOE/AL and KAO reviewed the document and conducted a site validation review on August 20, 1997. SNL incorporated changes requested as a result of the validation review process and

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resubmitted the document to the KAO. The baseline approval memo for the SNL WM baseline was issued October 23, 1997 by the KAO.

General PBS Information

Project Validated? Date Validated:

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date: 7/1/1999

FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	Y	Y	N	Y	Y	N

Project Identification Information

DOE Project Manager: Ronald B. Dobbs, Kirtland Area Office

DOE Project Manager Phone Number: 505-845-4428

DOE Project Manager Fax Number: 505-845-4710

DOE Project Manager e-mail address: rdobbs@doeal.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	52,186	0	52,186	33,616	15,981	18,570	19,908		0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	52,186	0	52,186	33,616	15,981	18,570	19,908		0	0	0	0	0	0	0

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Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS EM Baseline (current year dollars)	52,186	0	52,186	33,616	15,981	18,570	19,908		0	0	0	0	0	0	0	
PBS EM Baseline (constant 1999 dollars)	52,186	0	52,186	33,616	15,981	18,570	19,908		0	0	0	0	0	0	0	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%		2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

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Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/1998

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	36,681	Actual 1997 Cost:	15,981	Actual 1998 Cost:	19,908
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	792	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			21
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	813				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):	813	The Waste Ops Program was transferred from EM to the Landlord Program in FY1999.
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	0	
Additional Amount to Reconcile (+):	0	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	0	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Transfer program to Defense Programs			9/30/1998								

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Initiate Transition Activities			1/15/1996								
Mission Milestone			9/30/1998								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Transfer program to Defense Programs					Y						Manageament and funding responsibility will transfer to DP in FY1999
Initiate Transition Activities				Y							Initiate transition activities, including planning, and implementation.
Mission Milestone						Y					The waste management mission transferred to DP in FY1999

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
TRU														
Treatment	M3	0.00	0.00	0.00				0.00						
TRU														
Storage	M3							25.90						
MLLW														
Treatment	M3	2.01	0.00	2.01	0.00		0.00	2.01						
MLLW														
Storage	M3							69.89						

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
MLLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Comm. Disp.	M3	6.12	0.00	6.12				6.12						
MLLW														
Ship to DOE Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
TBD Disp.	M3	0.00	0.00	0.00				0.00						
LLW														
Treatment	M3	0.00	0.00	0.00	0.00		0.00	0.00						
LLW														
Storage	M3							808.10						
LLW														
Comm. Disp.	M3	14.00	0.00	14.00				14.00						
LLW														
Ship to DOE Disp.	M3	720.40	0.00	720.40	0.00		0.00	720.40						
Haz.														
Commercial	MT	0.00	0.00	0.00	0.00		0.00							
Tech.														
Deployed	Ntd	6.00	0.00	6.00					6.00					
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	

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TRU										
Treatment	M3									
TRU										
Storage	M3									
MLLW										
Treatment	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLLW										
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLLW										
On-Site Disp.	M3									
MLLW										
Comm. Disp.	M3									
MLLW										
Ship to DOE Disp.	M3									
MLLW										
TBD Disp.	M3									
LLW										
Treatment	M3									
LLW										
Storage	M3									
LLW										
Comm. Disp.	M3									
LLW										
Ship to DOE Disp.	M3									
Haz.										
Commercial	MT									
Tech.										
Deployed	Ntd									

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
TRU										
Treatment	M3									0.00
TRU										
Storage	M3									
MLLW										
Treatment	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00		50.03
MLLW										
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MLLW										
On-Site Disp.	M3									5.00
MLLW										
Comm. Disp.	M3									0.00
MLLW										
Ship to DOE Disp.	M3									1.00
MLLW										
TBD Disp.	M3									0.00
LLW										
Treatment	M3									21.30
LLW										
Storage	M3						0.00			
LLW										
Comm. Disp.	M3									0.00
LLW										
Ship to DOE Disp.	M3									151.70

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
Haz.										
Commercial	MT									187.70
Tech.										
Deployed	Ntd								6.00	6.00

Technology Needs

Site Need Code: AL-07-01-01-SC

Site Need Name: High Explosives (HE) & Barium (Ba) Remediation Of Soils, Surface Water And Groundwater

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: N

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: AL-07-02-06-MW

Site Need Name: Characterization of Excess Legacy Material - Reactor Experiments

Focus Area Work Package ID: MW-01

Focus Area Work Package: Nondestructive Characterization for Treatment, Transportation, and Disposal of MLL and MTRU Waste.

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

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Technology Needs

Related CCP Milestones

Related Waste Streams

Agree?

Change?

00595: LLW-3 - Reactor Materials

Y

N

Site Need Code: AL-07-02-01-MW

Site Need Name: Treatment of Classified Inorganic Debris with Toxicity Characterization Leaching Procedure (TCLP) Metals

Focus Area Work Package ID: MW-03

Focus Area Work Package: Handling Mixed Waste Contaminated Materials During Characterization, Treatment, Packaging, and Disposal

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Related CCP Milestones

Related Waste Streams

Agree?

Change?

02276: LMWTG2,9 - Inorganic Debris

Y

N

Site Need Code: AL-08-02-09-MW

Site Need Name: Treatment of Sorbed Tritiated Oil Waste

Focus Area Work Package ID: MW-07

Focus Area Work Package: Alternatives to Incineration to Reduce Emission Hazards.

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Direct Chemical Oxidation

Salt and Ash Stabilization - Stabilize Waste using Phosphate Ceramic Process

Polymer Microencapsulation

Salt and Ash Stabilization - Stabilize High Salt Content Waste Using Cementitious Process

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Project **AL017 / Sandia National Laboratories Waste Management**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0134**

Technology Needs

Stabilization of Salt Using Encapsulation with Polyester Resin

Salt and Ash Stabilization - Stabilize High Salt Content Waste Using Polysiloxane Process

Kinetic Mixer

Related CCP Milestones

Related Waste Streams

Agree?

Change?

01426: ER-0 - Mixed Waste

Y

N

Site Need Code: AL-09-02-07-MW

Site Need Name: On-site Macroencapsulation

Focus Area Work Package ID: MW-08

Focus Area Work Package: Facilitating Deployment for Unique Wastes

Focus Area: MWFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Stabilized Contaminants using Envirocare Polymer Macroencapsulation

Stabilized Contaminates using Arrow-Pak Polymer Macroencapsulation

Related CCP Milestones

Related Waste Streams

Agree?

Change?

02276: LMWTG2,9 - Inorganic Debris

Y

N

Technology Deployments

Deployment Year

Deployment Status

Planned

Forecast

Actual Date

Technology Name: Characterization Development

Potential Deployment 1999

Dataset Name: **FY 1999 Planning Data**

Date of Dataset: **9/20/1999**

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Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Albuquerque**

Site Summary Level: **Sandia National Laboratories**

Project **AL017 / Sandia National Laboratories Waste Management**

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Technology Deployments

		Deployment Year		
<u>Deployment Status</u>		<u>Planned</u>	<u>Forecast</u>	<u>Actual Date</u>
Technology Name:	Removal and Recovery of Mercury from Mixed Wastes			
Potential Deployment		1999		
Technology Name:	Graphite Electrode DC Arc Furnace			
Potential Deployment		1999		
Technology Name:	NDA Support of the CAO's Performance Demonstration Program			
Potential Deployment		1999		
Technology Name:	Characterization - Assay Contact-Handled Drums for Radionulides based on Capabilities Evaluation Program			
Potential Deployment		1999		
Technology Name:	Non-Destructive Assay Capability Peer Team			
Potential Deployment		1999		